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INT CL<sup>5</sup> B68C 1/00 1/02 1/08 1/10 1/12

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(54) Saddle support pads

(57) The support apparatus comprises a plurality of deformable panels 8 which in use are positioned between the saddle tree 1 and the back of a horse on which the saddle tree is mounted. Each panel is filled with a material (e.g. gas, liquid or granular material or foam) so that its contour adapts automatically to complement the surface of the back of the horse on which the saddle tree is mounted. Attachment methods are disclosed eg hook and burr type fastening.

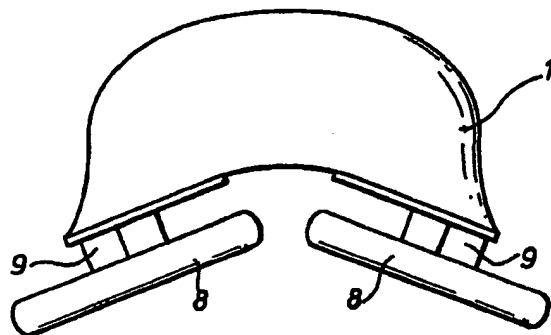
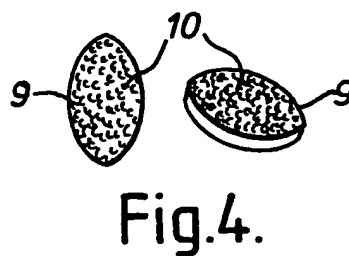
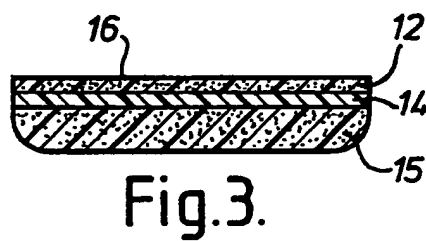
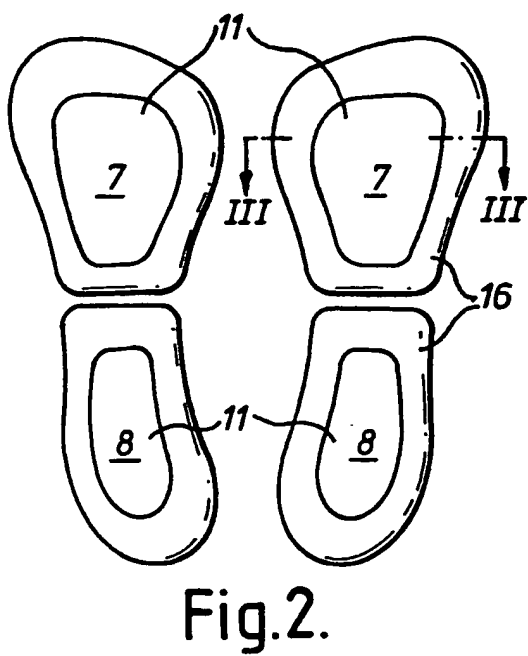
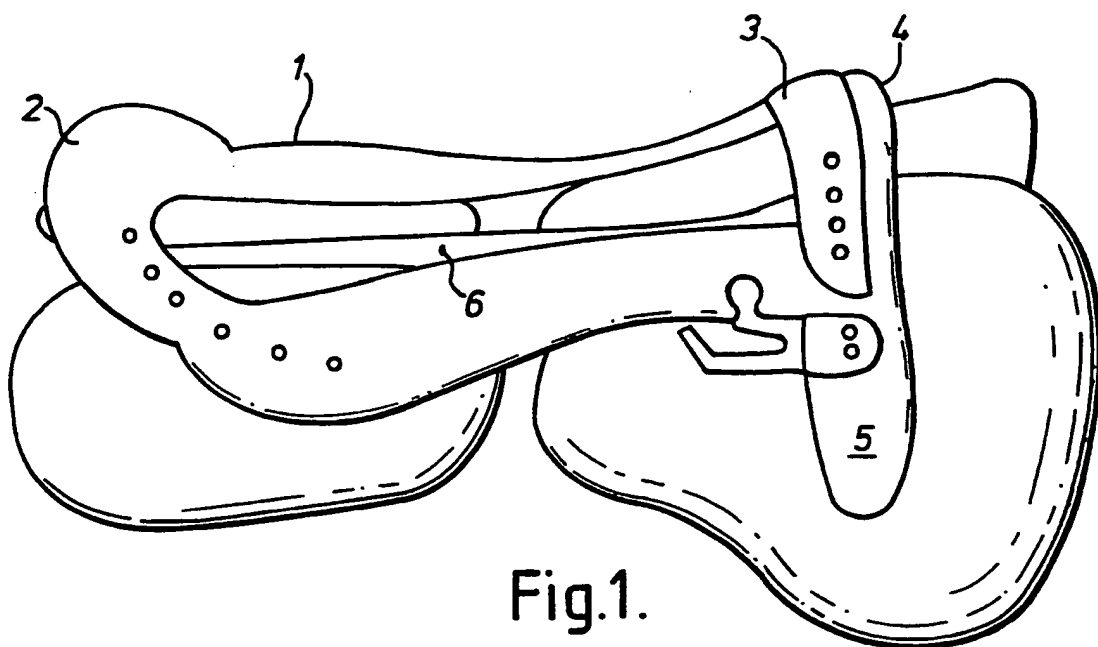
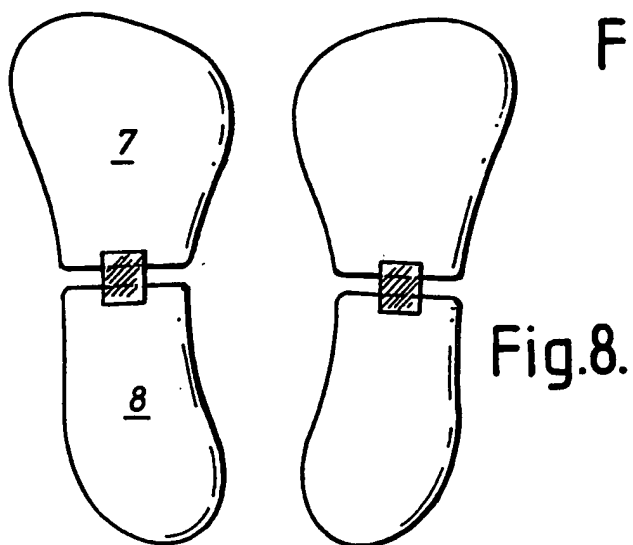
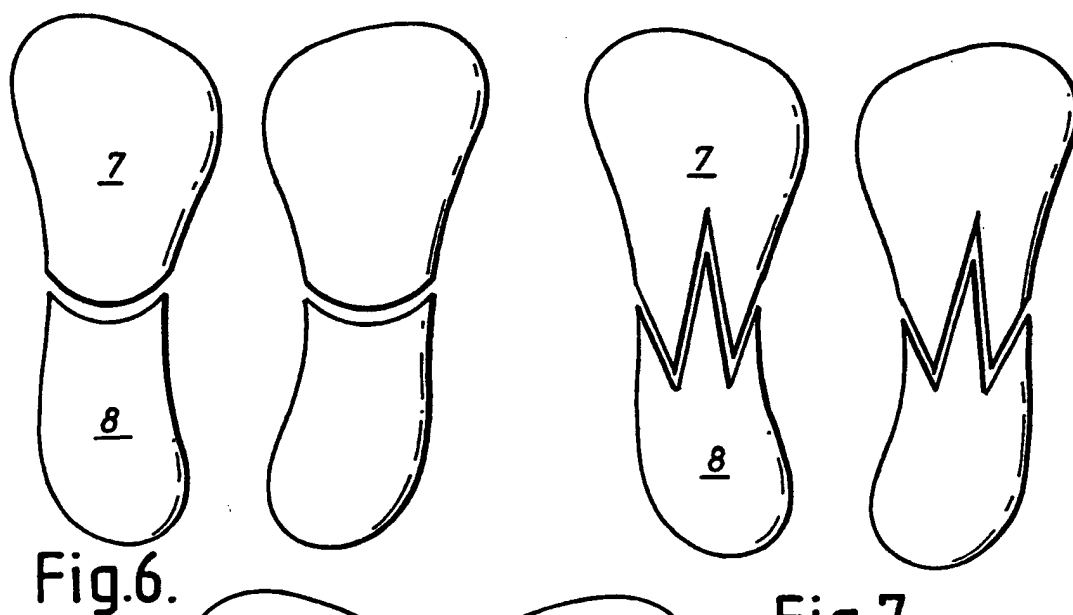
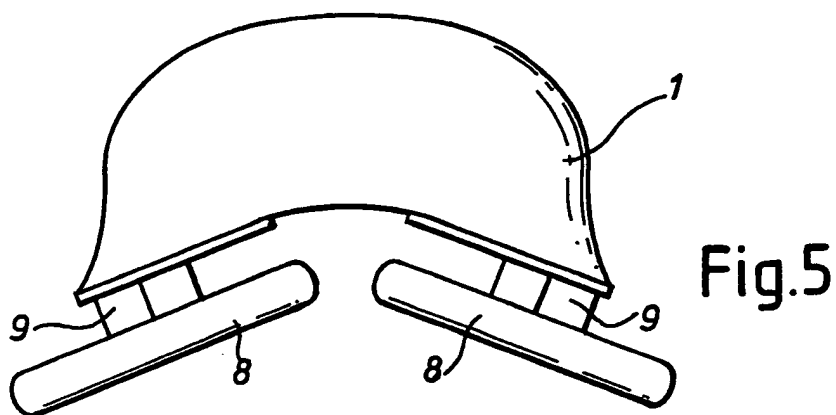


Fig.5

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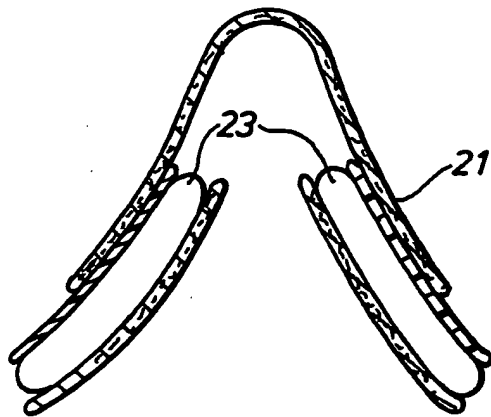


Fig.9.

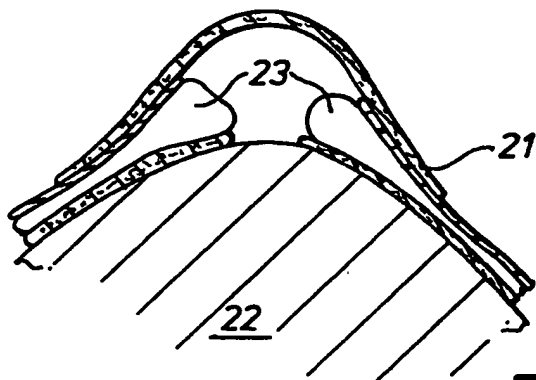


Fig.10.

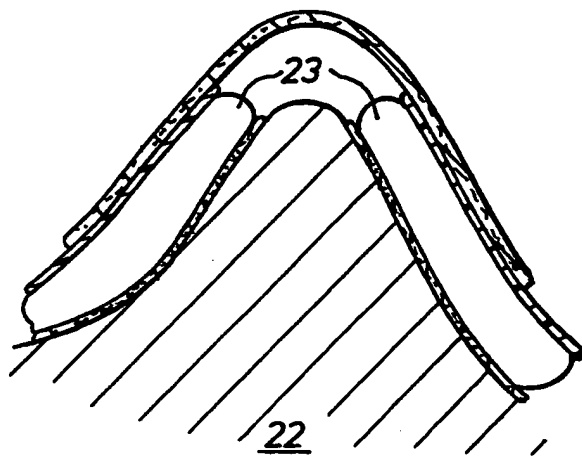


Fig.11.

IMPROVEMENTS IN AND RELATING TO SADDLE ASSEMBLIES

This invention relates to saddle assemblies and more especially to saddle assemblies which can readily be adapted to accommodate the physical characteristics and mobility of a given horse.

Traditionally, a high percentage of saddles have been custom made to accommodate the particular physical characteristics of a horse and its rider to ensure that the weight to be borne by the horse is spread relatively evenly over the back of the horse and to avoid localised pressure points. A saddler also has to take into account the continuously changing geometry of a horse's back, especially during movement phases such as walking, trotting and cantering. Further, many horses have a tendency to be one-sided during movement and such tendencies have also to be taken into account by a saddler when producing a traditional saddle.

Such saddles conventionally include two elongate

lengthwise extending panels filled with flock or like material and laced or otherwise secured to the underside of the respective saddle tree. These panels effectively provide a cushion between the saddle tree and the back of the horse, customising of the saddle being achieved by the extent, manner and distribution of filling material within the panels.

Saddle assemblies are also known in which the conventional panels as described above are replaced with two larger panels or skirts of a flexible resin material which extend along the full length of the saddle tree and are connected to the tree by rotatable threaded fasteners to facilitate pivotal movement of the panels relative to the saddle tree.

Whereas these saddle assemblies represent an improvement over traditional saddles in that they introduce a degree of selective adjustment to accommodate the physical characteristics of a given horse, the degree of adjustment provided (especially during actual use) is limited.

The present invention sets out to provide a saddle assembly which provides an enhanced degree of selective adjustment to enable the assembly readily to be customised to a large number of horses and to accommodate changes in the geometry of a horse's back which occur when, for example, the horse is walking, trotting or cantering.

According to the present invention in one aspect there is provided a saddle assembly which comprises a saddle tree

and support apparatus therefore, the support apparatus comprising a plurality of deformable panels which in use are positioned between the saddle tree and the back of a horse on which the saddle tree is mounted, the content of each panel being such that its contour adapts automatically to complement the surface of the back of the horse on which the saddle tree is mounted.

Each deformable panel is partially filled with a flowable material which may comprise a gas such as air, a liquid such as water or particulate material, eg a granular material. Two deformable panels may be provided one extending over substantially the entire length of the saddle tree and positioned to one side of the saddle tree. Alternatively two or more pairs of deformable panels may be provided, these panels being positioned below the saddle tree and to each side of the saddle tree.

The panels may be detachably secured to the undersurface of the saddle tree or may be separable therefrom. A sheet of a plastics material such as makron or delrin may be positioned between each panel and the under surface of the saddle tree. Also a permeable material may be positioned between each panel and the back of the horse on which the saddle tree is mounted.

According to the present invention in another aspect, there is provided a saddle assembly which comprises a saddle tree and two pairs of front and rear panels each filled with a compressible material and each selectively attachable to a front or rear undersurface of the saddle

tree through a riser pad surfaced on each side with a layer of VELCRO-like material, the said undersurfaces of the saddle tree and the upper surfaces of the panels also being surfaced with a layer of VELCRO-like material complementary to that of the riser pads such that each panel can selectively and removably be attached to the saddle tree.

By a "VELCRO-like material" is meant a material commonly marketed under the VELCRO trade name and comprising a first layer faced with a multiplicity of relative small plastics hooks and a second layer faced with a multiplicity of relatively small plastics loops, the hooks linking with the loops when the layers are superimposed to attach a first article carrying one layer to a second article carrying the other layer. When the articles are to be detached one from the other, this is simply achieved by lifting one layer relative to the other so removing the hooks from the loops.

Preferably, the VELCRO-like layers of the riser pads contain hooks and the VELCRO-like layers of the saddle tree and the panels contain loops.

Each panel may comprise superimposed layers of foam and plastics sheeting; the plastics may comprise a actyl co-polymer. Each riser pad may be filled with a compressible material, e.g. foam.

In another aspect, there is provided a saddle assembly comprising a saddle tree adapted to be supported at each of its four corners with individual panels filled with a deformable medium, each panel being selectively and



removably attached to the saddle tree. The medium may comprise a gas, a liquid or a granular material. Each panel may be selectively and removably attached to the saddle tree through complementary layers of VELCRO<sup>™</sup>-type material.

The invention will now be described, by way of example only, with reference to the accompanying diagrammatic drawings, in which:-

Figure 1 is a side view in perspective of a saddle assembly in accordance with the invention;

Figure 2 is a plan view of two of four panels of the saddle assembly illustrated in Figure 1;

Figure 3 is a section to an enlarged scale taken along line III-III of Figure 2;

Figure 4 shows plan and perspective views of one of several riser pads of the saddle assembly illustrated in Figure 1;

Figure 5 is a rear view in section of a saddle assembly in accordance with the invention;

Figures 6 to 8 are plan views of alternative panels of saddle assemblies in accordance with the invention; and

Figures 9 to 11 are cross-sections of an alternative saddle assembly in accordance with the invention.

The saddle assembly illustrated in Figures 1 to 5 comprises a saddle tree 1 of wood, plastics or other suitable material formed conventionally with a cantle 2, a head plate 3, a head 4, stirrup bars 5 and webbing springs 6. The saddle tree is traditionally covered with leather

or other suitable material.

The saddle tree is supported on two complementary pairs of front and rear panels 7, 8 which, in use, act to provide a cushion between the saddle tree and the back of a horse to be saddled. As will be seen more clearly from Figures 1 and 5, each pair of front and rear panels 7, 8 extend over substantially the entire length and width of the saddle tree and together provide a relatively large contact area with the back of a horse. A riser pad 9 is positioned between each panel 7, 8 and the adjacent saddle tree surface. Each pad is filled with a compressible material such as a medium density foam (e.g. NEOPRENE). Each riser pad is also surfaced on both sides with layers 10 of VELCRO<sup>TM</sup>-like material comprising a multiplicity of relatively small plastics hooks. Complementary layers 11 of VELCRO<sup>TM</sup>-like material having a similar multiplicity of loops are secured to the underside of the saddle tree (or a plate attached thereto) and the upper surface of the four panels 7, 8. As mentioned previously, when the layers come into contact, the hooks link with the loops to attach the layers together.

In an alternative arrangement, each riser pad comprises upper and lower VELCRO<sup>TM</sup> surfaced discs separated by a mechanical link which enables one disc to pivot towards and away from the other but not to turn one relative to the other. Thus, each disc may include a pair of spaced hooks with the hooks of one disc located normal to the other, the hooks co-operating with a centre piece

comprising two bars set at right angles to one another.

As will be seen from Figures 2 and 3, each panel typically comprises superimposed layers of medium soft foam 12, a tough resilient sheet of actyl co-polymer 14 (possible that known under the trade name DELRIN), and a medium dense foam 15 such as NEOPRENE encased within a wrap 16 of leather or other suitable material.

Typical panel contours are shown in Figures 2 and 6 to 8. The front and rear panels of Figure 2 are designed to be placed either in close proximity to one another or spaced apart depending upon the physical characteristics of the horse to be saddled. The panels shown in Figure 6 differ from those of Figure 2 in that the adjacent edges are contoured in a complementary manner better to accommodate relative pivotal movements between the panels during use of the saddle. The panels illustrated in Figure 7 are shaped to reduce the potential risk of the front and rear panels of either pair of panels becoming misaligned during use. Finally, the panels of Figure 8 are linked by webbing or strips of plastics again to minimise the potential risk of misalignment during use. Additional or alternative means of minimising the potential risk of misalignment during use may be provided. These means may comprise or include mechanical linkages which provide the required degree of pivotal movement while minimising the potential of misalignment.

Saddle assemblies as described essentially comprise the saddle tree 1, two pairs of front and rear panels 7, 8

and the four riser pads 9. In use, the panels 7, 8 are selectively and removably attached to the underside of the saddle tree using the VELCRO<sup>™</sup> covered riser pads 9. Thus, the hooks of the VELCRO<sup>™</sup> layers of the pads 9 link with the complementary loops of the VELCRO<sup>™</sup> layers of the saddle tree and the panels firmly to attach the panels to the saddle tree while permitting limited sideways movements. The panels 7, 8 are positioned to accommodate as nearly as possible the physical characteristics of the horse to be saddled and any one-sided or similar tendencies of the horse when walking, trotting or cantering. As mentioned, the nature of the connection between the VELCRO<sup>™</sup> layers allows limited pivotal movement between the front and rear panels 7, 8 to accommodate continuously occurring changes in the geometry of a horse while walking, trotting or cantering. In use, the riser pads flex and selectively compress to accommodate movements of the saddle relative to the horse's back.

Turning now to the embodiment illustrated in Figures 9 to 11 of the drawings, it will be seen that the saddle assembly illustrated comprises a saddle tree 21 supported on the back 22 of a horse. As will be apparent from Figures 10 and 11, the shape of a horses back can vary considerably, a rounded contour being shown in Figure 10 to a more pointed contour in Figure 11. Positioned below the undersurface of the saddle tree are panels 23 which are filled with a flowable material such as air, water or a granular material. It will be appreciated that other

gases, liquids or solid materials may be employed for this purpose. The panels are only partially filled with the flowable material to ensure that their contour can readily complement the shape of the backs of various horses and indeed the change in contour of a horses back when it is working. The panels may extend over the full length of the saddle tree; alternatively a series of spaced panels may be employed. The panels serve to distribute the weight of a rider more evenly over the entire load bearing surface of the saddle. As mentioned previously the shape of the panels change automatically to compensate for any variations in pressure over their surfaces. Such variations in pressure may be as a result of the rider's weight, the geometry (possible asymmetrical) of the horses back and the muscular movements of the horses back during movement phases such as walking trotting and cantering.

As illustrated each panel is separate, the flowable material within a panel being re-distributed as pressure is applied to it. In an alternative embodiment, the panels may be linked by for example tubes to allow the air to re-distribute both within and between the two or more panels.

The panels essentially vary the lower contour of the saddle tree to achieve an optimum fit simply by varying the respective air contents of the panels. When air is the flowable material, each panel is preferably provided with a valve to enable air selectively to be added to or removed from one or more panels depending upon a given requirement. Thus the air content of the panels illustrated in Figures

10 and 11 may vary one from the other to accommodate the satisfactory fitting of the same saddle to a wide withered horse and a narrow withered horse. When fitting the saddle to a narrow withered horse, the panel may require further inflation in order to compensate for the narrow withers of the horse. When fitting a saddle to a wide withered horse, less air is required within the panels. The valves may be of the non-return type or simply comprise an inlet with a plug. It is to be understood that other forms of valve may be employed. For flowable materials other than a gas, each panel may simply define a closed but flexible container.

Each panel may be attached to the undersurface of the saddle tree by the means discussed previously. Alternatively the weight of the saddle tree and a rider may in itself be sufficient to retain the panels in their required positions.

A sheet of plastics material (eg an actyl copolymer) may be positioned between the undersurface of the saddle tree and the panels. Such a sheet will typically be of the order of 2mm thickness and may comprise a material such as makron or delrin. Also a sheet of permeable material may be positioned between each panel and the back of the horse on which the saddle tree is mounted. This permeable material may comprise a felt material to assist or prevent the formation of hot spots between the saddle and the back of the horse.

Advantages of saddle assemblies in accordance with the invention include the fact that they can selectively and

readily be customised to accommodate the physical characteristics and mobility of different horses and, the fact that the saddle configuration changes to accommodate changes in back geometry of a horse while the horse is being ridden.

It will be appreciated that the foregoing is merely exemplary of saddle assemblies in accordance with the invention and that modifications can readily be made thereto without departing from the true scope of the invention.

Claims

1. A saddle assembly which comprises a saddle tree and support apparatus therefore, the support apparatus comprising a plurality of deformable panels which in use are positioned between the saddle tree and the back of a horse on which the saddle tree is mounted, the content of each panel being such that its contour adapts automatically to complement the surface of the back of the horse on which the saddle tree is mounted.
2. An assembly as claimed in Claim 1 wherein each deformable panel is partially filled with a flowable material.
3. An assembly as claimed in Claim 2 wherein the flowable material is a gas.
4. An assembly as claimed in Claim 3 wherein the gas is air.
5. An assembly as claimed in Claim 2 wherein the flowable material is a liquid.



6. An assembly as claimed in Claim 5 wherein the liquid is water.

7. An assembly as claimed in Claim 2 wherein the flowable material is in granular form.

8. An assembly as claimed in any of the preceding Claims wherein two deformable panels are provided, each extending over substantially the entire length of the saddle tree and positioned to one side of the saddle tree.

9. An assembly as claimed in any one of Claims 1 to 7 wherein two or more pairs of deformable panels are provided, these panels being positioned below the saddle tree and to each side of the saddle tree.

10. An assembly as claimed in any one of the preceding claims wherein the panels are detachably secured to the undersurface of the saddle tree.

11. An assembly as claimed in any one of Claims 1 to 9 wherein the panels are separable from the undersurface of the saddle tree.

12. An assembly as claimed in any one of Claims 1 to 11 wherein a sheet of a plastics material is positioned between each panel and the under surface of the saddle tree.

13. An assembly as claimed in any one of the preceding Claims wherein a sheet of a permeable material is positioned between each panel and the back of the horse on which the saddle tree is mounted.

14. A saddle assembly which comprises a saddle tree and two pairs of front and rear panels each filled with a compressible material and each selectively attachable to a front or rear undersurface of the saddle tree through a riser pad surfaced on each side with a layer of VELCRO-like material (as herein defined), the said undersurfaces of the saddle tree and the upper surfaces of the panels also being surfaced with a layer of VELCRO-like material complementary to that of the riser pads such that each panel can selectively and removably be attached to the saddle tree.

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15. An assembly as claimed in Claim 14 wherein each panel comprises superimposed layers of foam and plastics sheeting.

16. An assembly as claimed in Claim 15 wherein the plastics comprises an actyl co-polymer.

17. A saddle assembly comprising a saddle tree adapted to be supported at each of its four corners with individual panels filled with a deformable medium, each panel being selectively and removably attached to the saddle tree.

18. An assembly as claimed in Claim 17 wherein the medium comprises a gas, a liquid or a granular material.

19. A saddle assembly substantially as herein described and as described with reference to Figures 1 to 4, 5, 6 to 8 and 9 to 11 of the accompanying drawings.

Patents Act 1977  
 Examiner's report to the Comptroller under Section 17  
 (The Search report)

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Application number  
 GB 9420559.8

Relevant Technical Fields

- (i) UK Cl (Ed.M) A1M (MCC, MCJ)  
 (ii) Int Cl (Ed.5) B68C 1/00, /02, /08, /10, /12

Search Examiner  
 MR R D CAVILL

Date of completion of Search  
 1 DECEMBER 1994

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASE: WPI

Documents considered relevant following a search in respect of Claims :-  
 1 to 13, 17, 18, 19

Categories of documents

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Category	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2090512 A (SCHAUPP) see whole document	1 to 4 and 8 to 12
X	US 5119618 (STRECK) see whole document particularly Figure 21	1, 2, 5, 8 to 13
X	DE 4036907 A1 (GRIESEL) see whole document	1, 2, 3, 4, 10, 11

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